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THE JANEIRENSIS GROUP OF THE GENUS EUBORELLIA, WITH THE DESCRIPTION OF A NEW SPECIES

(DERMAPTERA)

BY MORGAN HEBARD

While at Miami, Florida, early in 1919, the author again visited the mangrove swamp on the border of Brickell's Hammock, for the purpose of securing additional material of several interesting species of Orthoptera which, in 1915, had been found therein,—i. e. *Hygronemobius alleni* (Morse), *Anaxipha scia* Hebard and *Anaxipha imitator* (Saussure.)¹ While searching for specimens of the second species, about the mangrove shoots which projected from the muck and tidal litter, some of the latter was overturned and a specimen of *Euborellia* revealed. This individual soon was seen to be different from *annulipes* (Lucas), the only species of the genus hitherto known from the United States, and vigorous efforts were vainly made to find other examples. Several days later the spot was revisited and yards of the litter carefully lifted and sifted. Hours of such work resulted in our securing five males, three females and several immature specimens of the species. These were found under seaweed and sea-grass, drifted in to the edge of the normal high tide, usually between the lower matted layers, near the wet, mucky ground. The species was local, but never in colonies, as is usual for *Anisolabis maritima* (Géné), two specimens of which were found in the same place. The area in which the species occurred is shown in the accompanying illustrations (pl. XVIII, figs. 1 and 2).

Comparison of this material with a female of *Euborellia ambigua* (Borelli),² from Santa Maria de Dota, Costa Rica, shows full agreement. Further comparison of material convinces us that the West Indian series, recorded by Rehn and Hebard as *E. ambigua*, represents a distinct, though very closely related, species.

¹ Recorded in Ent. News, xxvi, pp. 463, 465 and 466, (1915).

² Recently received from Borelli, in exchange, by the Academy of Natural Sciences of Philadelphia.

These species, with the South American *Euborellia janeirensis* (Dohrn), show a distinctive type of tegminal development, in which the aborted rounded tegmina cover all of the mesonotum except the small median scutellar area, or all but a narrow median portion of the mesonotum. We refer them to what we term the Janeirensis Group. This type of tegmina in some respects resembles that developed in the Indian species *Paralabis castetsi* (Bolivar) and *Epilabis penicillata* (Borelli). Those species, however, have the tegmina much more transverse, with cephalic margins parallel to, and separated a distance from, the caudal margin of the pronotum, so that a narrow cephalic marginal portion of the metanotum is exposed, giving the appearance of a very broad, but shallow, scutellar area.

In order to avoid further confusion, we give, in the accompanying key, the more striking features of difference between the American species under consideration, following them with such additional data as is considered of value.

Key to the Species of the Janeirensis Group

A. Seventh to ninth abdominal tergites of male with latero-caudal angles sharply acute-angulate produced, weakly keeled and weakly rugulose. (Eighth and ninth abdominal tergites of female with latero-caudal angles roundly angulate produced, showing weak traces of keels distad.) Male forceps more distinctly bowed, as in *Euborellia moesta* (Géné) or the type of extreme specialization developed in *annulipes*; female forceps longer and more slender. Limbs unicolorous. (Antennae not annulate.) Caudal metatarsus no longer than combined length of the succeeding tarsal joints. (Size averaging large³, 12.7⁴ to 14⁵ mm.). (Southern Florida and Costa Rica.)

ambigua (Borelli)

AA. Sixth to ninth abdominal tergites of male with latero-caudal angles very sharply acute-angulate produced, distinctly keeled and rugose. Male forceps weakly bowed, as is usual in *annulipes*; female forceps shorter and heavier. Limbs not unicolorous. Caudal metatarsus slightly but distinctly longer than combined length of succeeding joints.

³ Unless qualified the length given by us for Dermaptera is always that of the body, exclusive of the forceps.

⁴ This is from the Costa Rican specimen before us; all of the Florida individuals are larger.

⁵ A body length of 16 millimeters is given in the original description.

B. Antennae not annulate. Eight and ninth abdominal tergites of female with latero-caudal angles rounded and rarely showing any trace of keel. Femora with external faces broadly washed with brown, this often weak; internal faces similarly washed with brown, this weaker and less extensive. Tibiae with ventral surface normally very weakly tinged with brown; this, when conspicuously developed, extending to near distal extremity. Size averaging small, 8.2 to 11.7⁶ mm. (West Indies.)

caralbea new species

BB. Antennae annulate. Eighth and ninth abdominal tergites of female with latero-caudal angles roundly angulate produced and showing very weak keels. Femora with median portion of external faces suffused with brown, corresponding portion of internal faces usually with a suffused patch of this color. Tibiae weakly tinged with brown proximad. Size averaging larger, 11.5 to 12.5 mm. (South America.)

janeirensis (Dohrn)

Euborellia ambigua (Borelli) (Plate XIX, figures 1, 2 and 3.)

1906. *Anisolabis ambigua* Borelli, Boll. Mus. Zool. Anat. comp. Univ. Torino, XXI, no. 531, p. 3. [♀; Rio Jesus Maria, in mangrove region, Costa Rica.]

Santa Maria de Dota, Costa Rica, 1 ♀, [A. N. S. P.].

Brickell's Hammock, Miami, Florida, II, 28 and III, 6, 1919, (M. Hebard; in mangrove swamp), 5♂, 3 ♀, 1 juv., [Hebard Cln.].

The hitherto unknown male sex of this species may be readily recognized by the figures and the characters given in the key. In ambisexual features it agrees closely with Borelli's adequate description of the female. We would note, however, that the pronotum, though widening evenly caudad, is there not as wide as the width of the head across the eyes. Borelli has stated "Pronoto . . . posteriormente di larghezza uguale a quella del capo."

At the coastal localities where it has been found the species is known only from mangrove swamps. It will probably be found to have a wide distribution in that environment, when such situations, difficult of access and usually harboring swarms of mosquitoes, have been more extensively and carefully examined.

⁶ Length of body, including forceps, of this largest specimen, from Porto Rico, 13.5 mm.

Euborellia caraibea new species (Plate XIX, figures 4, 5 and 6.)

1917. *Euborellia ambigua* Rehn and Hebard (not *Anisolabis ambigua* Borelli, 1906), Bull. Am. Mus. Nat. Hist., xxxvii, p. 638. [♀, ♂; Nassau, New Providence Island, Bahamas; Jesús del Monte, Cuba; Stony Hill and Montego Bay, Jamaica; Roseau, Dominica.]

Previous to the records noted above, incorrectly referred to *ambigua*, material of the species had been recorded at different times as *annulipes* and *janeirensis*. Specimens of *caraibea* from Porto Rico are in the Philadelphia Collections, while Borman's record of *janeirensis* from St. Vincent⁷ is almost certainly referable to this species.

The most important features of difference between *caraibea* and its nearest allies are given in the accompanying key, and are shown by the figures. The following additional characters are noteworthy.

Type.—♂; Nassau, New Providence Island, Bahamas. February 3, 1914. (M. Hebard.) [Hebard Collection, Type no. 776.]

Form moderately stout, as in *janeirensis*, slightly heavier than in *ambigua*. Antennae with longest distal joints not over twice as long as wide, in *janeirensis* about two and one-half times as long as wide, in *ambigua* fully three times as long as wide. Pronotum with length equal to width as in *janeirensis*, slightly shorter than in *ambigua*. Abdomen generally impresso-punctulate, this slightly heavier than in *janeirensis*; in *ambigua* the abdomen is almost smooth, showing much finer impressed punctulations laterad and distad.

Ultimate abdominal tergite with a distinct, impressed, medio-longitudinal line; the surface slightly more tumid laterad than in *janeirensis* and *ambigua*. Forceps much as in males of *janeirensis*; short, stout, triquetrous proximad, straight to the incurved apices, the sinistral arm being less strongly incurved distad than the dextral arm, internal margin bluntly subserrulate. Penultimate abdominal sternite triangularly produced, with apex rather broadly truncate.

Allotype.—♀; same data as type. [Hebard Collection.]

Agrees with male in features given above, except as follows. Ultimate abdominal tergite showing weak convexity dorso-laterad. Forceps much as in females of *janeirensis*; shorter than in male, stout, triquetrous proximad, straight to the weakly incurved apices, the sinistral and dextral arms being incurved to an equal degree, the nearly attingent ventro-internal margins slightly more coarsely but as bluntly subserrulate as in male.

The measurements of the type and allotype are as follows. Length of body, ♂ 10.2, ♀ 10.3; length of pronotum, ♂ 1.43, ♀ 1.56; caudal width of pronotum, ♂ 1.43, ♀ 1.56; length of tegmen, ♂ 1.16, ♀ 1.29; width of tegmen,

⁷ Proc. Zool. Soc. London, 1892, p. 201, (1892).

♂ .88, ♀ .98; length of forceps, ♂ 1.9, ♀ 2.24; greatest (proximal) width of arm of forceps, ♂ .79, ♀ .85 mm.

General coloration shining, blackish with an auburn tinge. Antennae auburn, the proximal joints very slightly paler. Limbs warm buff, marked as described in key.

In addition to the type and allotype, a pair bearing the same data, in the Hebard Collection, and a female, from the same locality, taken in the spring of 1904, by W. M. Wheeler, in the Academy of Natural Sciences Collection, are designated paratypes.

The following previously unrecorded material is before us:

Cape Haitien, Hayti, (W. M. Mann), 1 ♀, [Mus. Comp. Zool.].

Momance, Hayti, XI, 1912, (W. M. Mann), 1 ♀, [Hebard Cln.].

St. Marc, Hayti, I, 1913, (W. M. Mann), 1 ♂, [Mus. Comp. Zool.].

Arecibo, Arecibo, Porto Rico, VII, 30 to VIII, 1, 1914, (Lutz, Mutchler, Watson; under bark of rotten stump and under logs), 1 ♂, 1 ♀, [Acad. Nat. Sci. Phila.].

Utua, Arecibo, Porto Rico, (W. M. Wheeler), 1 ♂, 3 ♀, [Amer. Mus. Nat. Hist.].

Baños de Coamo, Ponce, Porto Rico, (W. M. Wheeler), 1 ♂, 2 ♀, 3 juv., [Amer. Mus. Nat. Hist.].

Aibonito, Ponce, Porto Rico, VI, 1 to VII, 17, 1914 and 1915, (Lutz, Mutchler, Barber; in rotten logs), 1 ♂, 2 ♀, [Amer. Mus. Nat. Hist.].

Port of Spain, Trinidad, III, 4, 1910, 1 ♂, [Acad. Nat. Sci. Phila.].

The last is the southernmost locality known for the species.

Euborellia janeirensis (Dohrn)

1864. *F[orcinella] janeirensis* Dohrn, Stettin Ent. Zeit., xxv, p. 285. [♂; Rio de Janeiro, Brazil.]

Two males and three females from Ceará Mirim, Rio Grande do Norte and Independencia, Parahyba, Brazil, correctly recorded as this species by Rehn,⁸ have been used as the basis for the comparisons made in the present paper.

⁸ Trans. Am. Ent. Soc., XLII, p. 218, (1916).

EXPLANATION OF PLATES

Plate XVIII

Mangrove swamp on edge of Brickell's Hammock, Miami, Florida. Habitat of *Euborellia ambigua*, *Hygronemobius alleni*, *Anaxipha scia* and other species.

Fig. 1.—Looking into swamp from seaward border. Tidal litter shown in foreground, beneath which *Euborellia ambigua* occurred.

Fig. 2.—Seaward border of swamp, looking out toward Biscayne Bay from the same spot shown in figure 1. The mangrove shoots shown in the lower right-hand corner were the preferred habitat of *Anaxipha scia*, while beneath the tidal litter at their bases *Euborellia ambigua* was found.

Plate XIX

Fig. 1.—*Euborellia ambigua* (Borelli). Brickell's Hammock, Miami Florida. Dorsal outline of male. ($\times 3$)

Fig. 2.—*Euborellia ambigua* (Borelli). Brickell's Hammock, Miami, Florida. Lateral view of distal portion of male abdomen. ($\times 4$)

Fig. 3.—*Euborellia ambigua* (Borelli). Brickell's Hammock, Miami, Florida. Dorsal view of distal portion of female abdomen. ($\times 4$)

Fig. 4.—*Euborellia caraibea* new species. Nassau, New Providence Island, Bahamas. Type. Dorsal outline of male. ($\times 3$)

Fig. 5.—*Euborellia caraibea* new species. Nassau, New Providence Island, Bahamas. Type. Lateral view of distal portion of male abdomen. ($\times 4$)

Fig. 6.—*Euborellia caraibea* new species. Nassau, New Providence Island, Bahamas. Allotype. Dorsal view of distal portion of female abdomen. ($\times 4$)

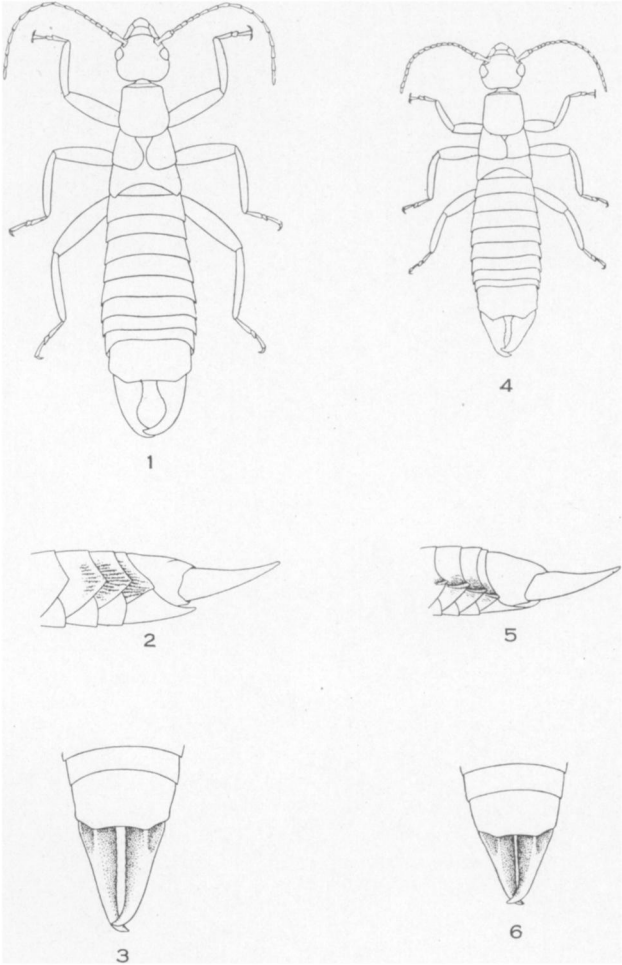


FIGURE 1.



FIGURE 2.

HEBARD—GENUS EUBORELLIA



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